

WHDTS White 4-Digit Electronic Clock DIY Kit

I. Introduction:

It is a Creative Mini Electronic Clock Design DIY Kit. Its LED digital tube display screen is the same size as the PCB. It uses a unique LED digital tube display. There are 5 display cells which are used to display seconds at the top and bottom. The green number is displayed in the middle of the display, and the upper and lower rows show red.

II. Feature:

- 1>.Hours/Minutes/Seconds automatically switch display
- 2>.Matte LED display
- 3>.Hour and half hour alarm function
- 4>.High-precision clock display

III. Parameter:

- 1>.Work Voltage: DC 4.5V~5.5V
- 2>.Work Current: 100mA
- 3>.Work Module: Automatic Control
- 4>.Work Temperature: -40℃~85℃
- 5>.Work Humidity: 0%~95%RH
- 6>.Size(Installed): 56*27*24mm

IV. Instructions for Functions:

1>. Display Time: The clock will automatically display time in H:M and :S in turn after power ON. The LED blocks in the upper and lower rows will move automatically, and the movement mode will be changed automatically within 10 seconds.

2>. Hour and Half Hour Alarm Function:

Definition: The 1st Button below refer to the button away from the USB socket.

Short-press the 1st Button: Enter Buzzer settings mode.

Then press the 2nd Button to turn ON/OFF the Hour and Half Hour Alarm Function.

3>. Time Setting Function:

Short press the 1st Button to return to clock display interface.

Keep pressing the 1st Button for more than 3s: Enter time setting mode. 2-bit Hour screen will keep flashing.

Then press the 2nd Button to adjust the Hour.

Similarly, adjust Minute and Second. If you don't need to set Hour/Minute/Second, you can press the 1st Button twice after when in the second setup interface and then return to clock display interface.

4>. Calibration Function:

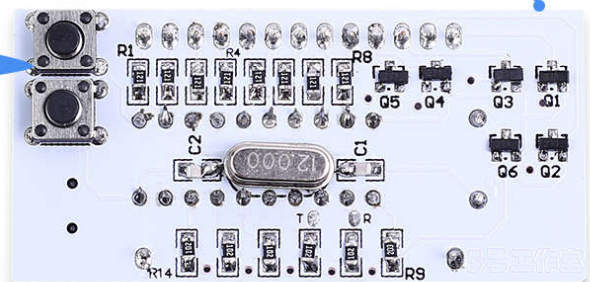
Keep pressing the 2nd Button for more than 3s: Enter the calibration of second mode. The calibration range: -20~20s.

Material: RF-4 Material Military Grade PCB Board



Button:

- **Short-press Upper Button:** Enter Buzzer settings mode. Then press the Bottom Button to turn ON/OFF the Hour and Half Hour Alarm Function.
- **Long-press Upper Button:** Enter time settings mode. Then press the Bottom Button to adjust the Hour/Minute/Second.



V. Components List in Package:

NO.	Component Name	PCB Marker	Parameter	QTY
1	0805 SMD Resistor	R1-R8	120ohm(121)	8
2	0805 SMD Resistor	R9	20Kohm(203)	1
3	0805 SMD Resistor	R10-R14	1Kohm(102)	5
4	0805 SMD Capacitor	C1-C3	30pF	3
5	S9012 Transistor	Q1-Q6	SOT-23	6
6	MINI USB Female Socket		5Pin	1
7	Black Button		6*6mm	2
8	Crystal oscillator		12MHz	1
9	STC11F02E-35I		DIP-20	1
10	Buzzer			1

11	4Bit Digital Tube Display		56*27*22mm	1
12	MINI USB Cable		80cm	1
13	PCB		56*27*1.6mm	1

VI. Application:

- 1>.Training welding skills
- 2>.Student school
- 3>.DIY production
- 4>.Project Design
- 5>.Electronic competition
- 6>.Gift giving
- 7>.Crafts collection
- 8>.Home decoration
- 9>.Souvenir collection
- 10>.Graduation design
- 11>.Holiday gifts

VII. Installation Steps

1. Preparation:

- 1). This product comes to you is DIY kits that needs to be installed, not the finished product!
- 2). DIY Installation is a rather precise operation, which requires patience to finish the project.
- 3). Users need to prepare the welding tool first.
- 4). Users can complete the installation under the instruction of PCB Silk Screen and Components Listed.
- 5). Read the installation manual before starting installation carefully.
- 6). We have been keeping trying to improve the manual. If any words or steps of the instruction confuses you, please feel free to let us know because English is not our first language. We will appreciate for the generous help of pointing out our expression problem. Thank you in advance.

2. Operating Notice:

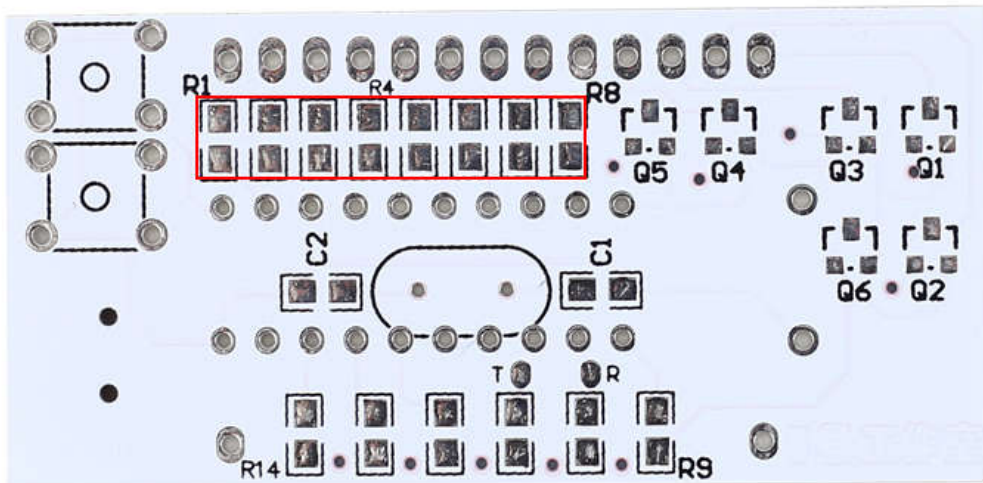
More tips about the DIY soldering that will directly affect the performance effect of the finished product as followed:

- 1). Install complex components preferentially;
- 2). Pay attention to the installation direction of components.
- 3). Pay attention to the positive and negative of some certain components. Make sure that all the components were soldered at right place in the right direction.
- 4). Make sure bonding pad not peel off and no pseudo /float soldering. (If it's not, you can repair the welding or reconnect adjacent components with superfluous metal pins to work things out.)
- 5). The soldering iron mustn't touch the components more than one second, or the high temperature of the soldering iron will damage the components.
- 6). Strictly prohibit short circuit.
- 7). If the soldering failed, it can be repaired through sucking out the components and re-soldering by means of a solder sucker.
- 8). Check that all of the LED can be illuminated. User must install the LED according to the specified rules. Otherwise some LED will not give out light.
- 9). The default code inside the chip, the function is more abundant, **please do not update the code inside arbitrarily!**

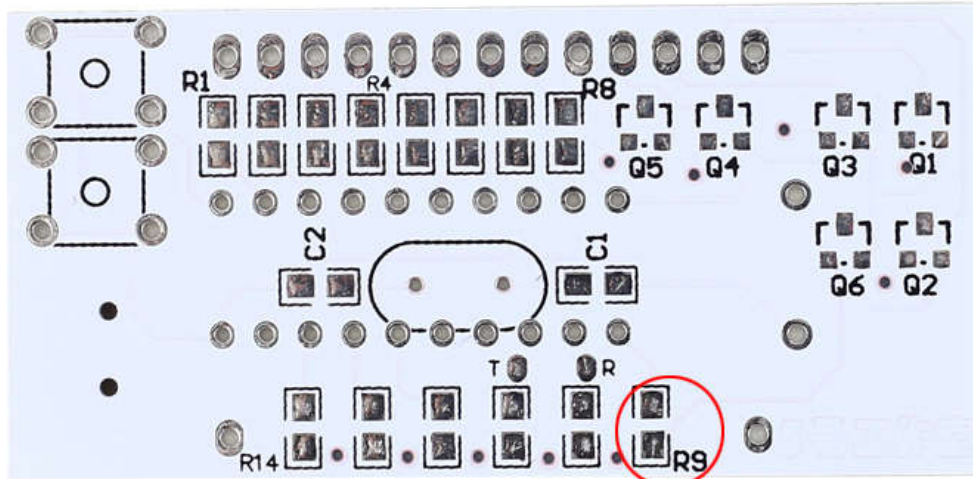
3. Installation Steps & Illustration(Please be patient to install!!!):

- 1>.Step 1: Install 8pcs 120ohm(121) 0805 SMD Resistor at R1-R8.
- 2>.Step 2: Install 1pcs 20Kohm(203) 0805 SMD Resistor at R9.
- 3>.Step 3: Install 5pcs 1Kohm(102) 0805 SMD Resistor at R10-R14.
- 4>.Step 4: Install 3pcs 30pF 0805 SMD Capacitor at C1-C3. Note: The C3 is on the other side of PCB.
- 5>.Step 5: Install 6pcs SOT-23 S9012 Transistor at Q1-Q6.
- 6>.Step 6: Install 1pcs 12MHz Crystal oscillator.
- 7>.Step 7: Install 1pcs MINI USB Female Socket on another side of PCB.
- 8>.Step 8: Install 1pcs DIP-20 STC11F02E-35I. There is a dot on one corner of the IC and there is a mark on PCB where the IC can place on. These two marks are corresponding to each other and are used to specify the installation direction of the IC. Note: It is on the other side of PCB.
- 9>.Step 9: Install 2pcs 6*6mm Black Button.
- 10>.Step 10: Install 1pcs Buzzer on the same side to IC.
- 11>.Step 11: Install 1pcs 4Bit Digital Tube Display on the same side to IC.
- 12>.Step 12: Connect to power supply and enjoy the clock.

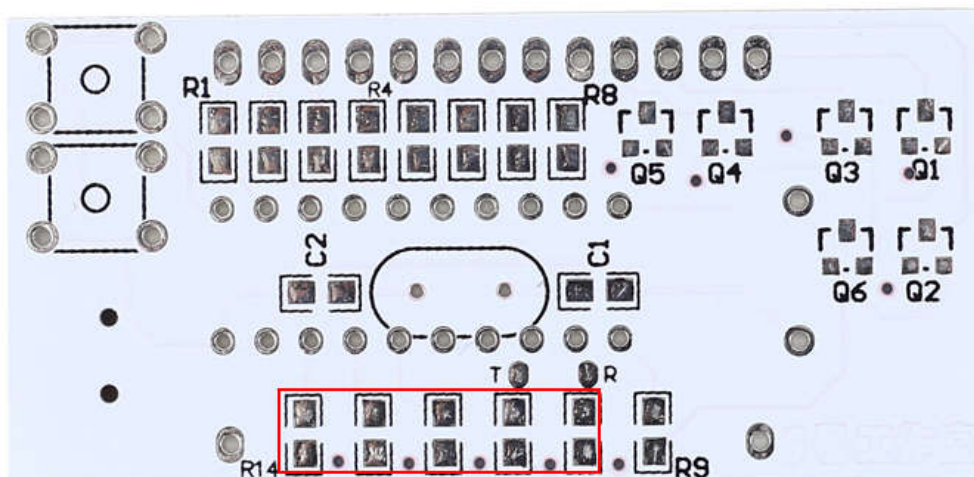
Step 1: Install 8pcs 120ohm(121) 0805 SMD Resistor at R1-R8.



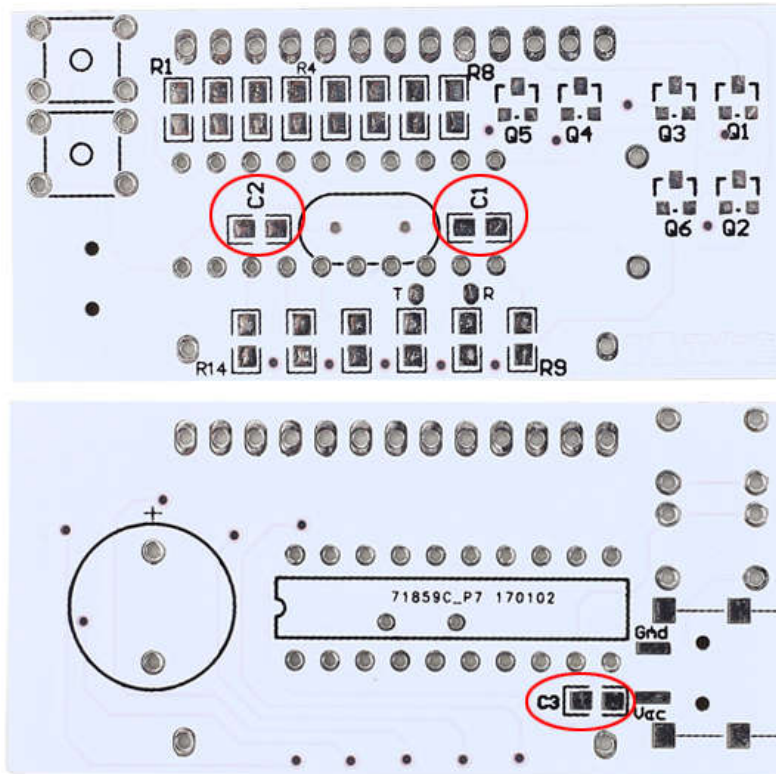
Step 2: Install 1pcs 20Kohm(203) 0805 SMD Resistor at R9.



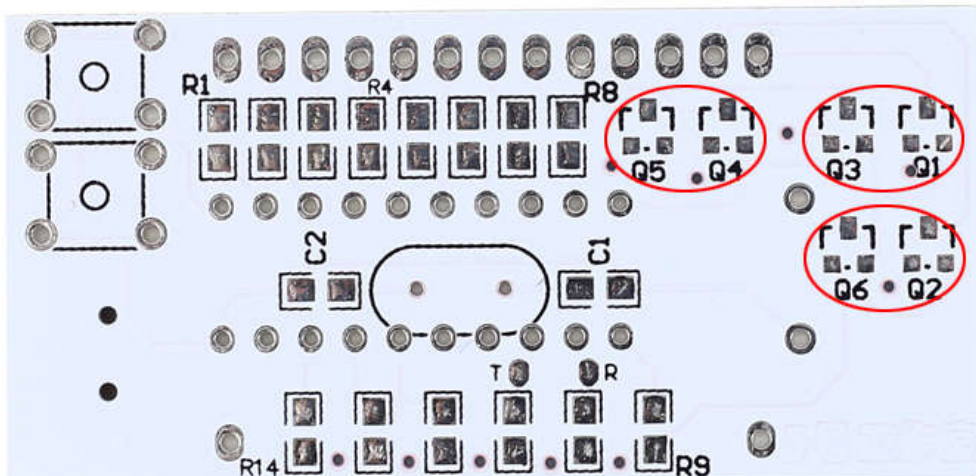
Step 3: Install 5pcs 1Kohm(102) 0805 SMD Resistor at R10-R14.



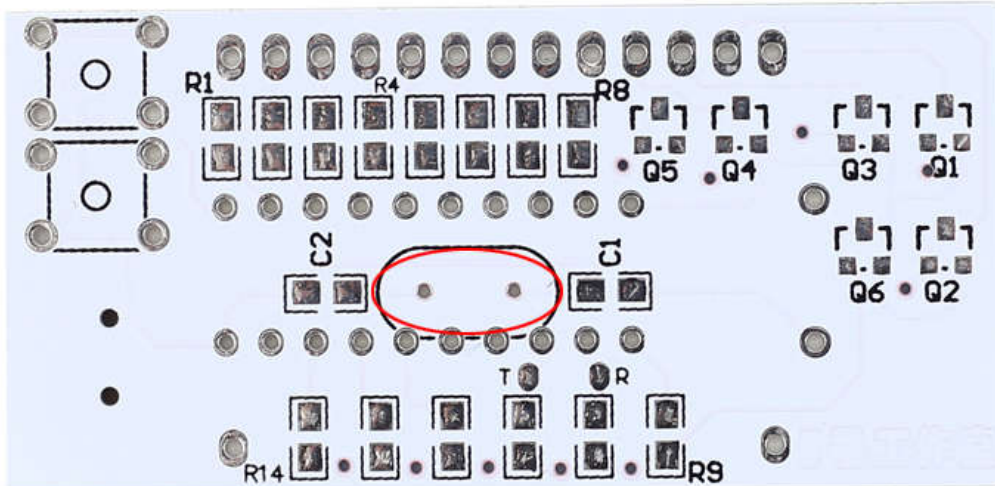
Step 4: Install 3pcs 30pF 0805 SMD Capacitor at C1-C3.
Note: The C3 is on the other side of PCB.



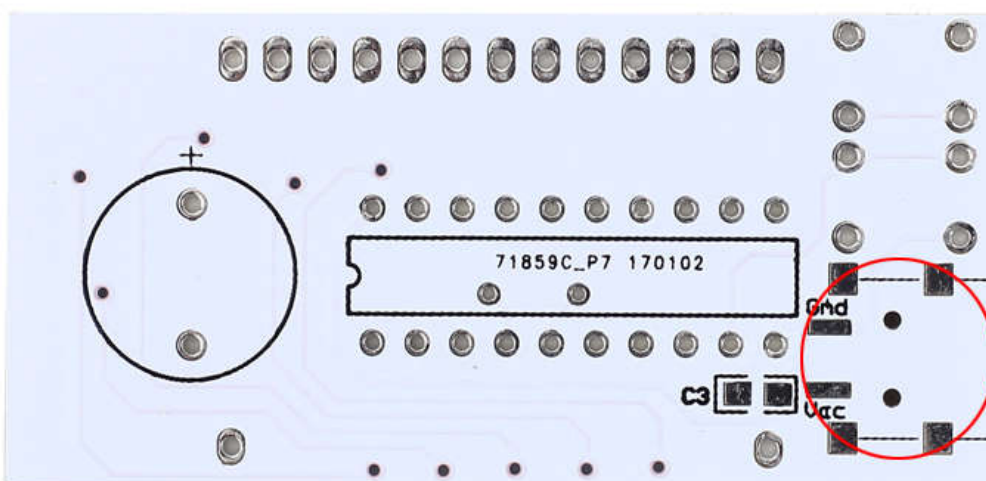
Step 5: Install 6pcs SOT-23 S9012 Transistor at Q1-Q6.



Step 6: Install 1pcs 12MHz Crystal oscillator.

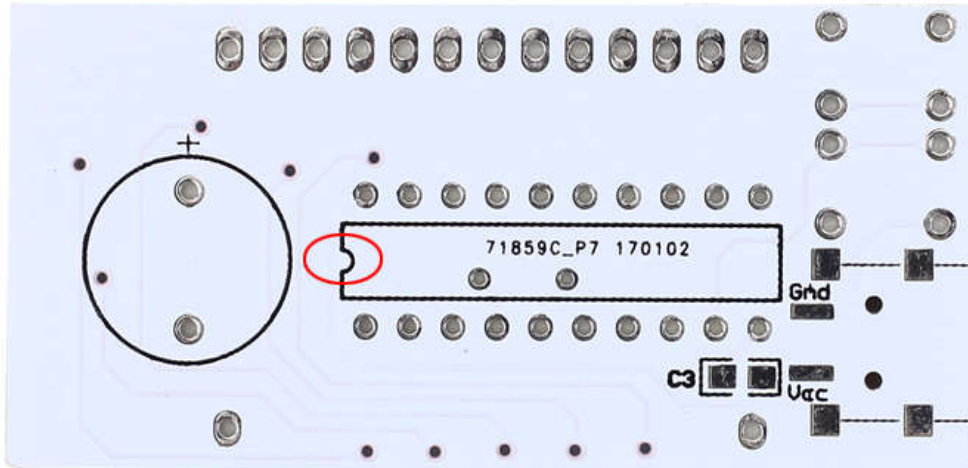


Step 7: Install 1pcs MINI USB Female Socket on another side of PCB.

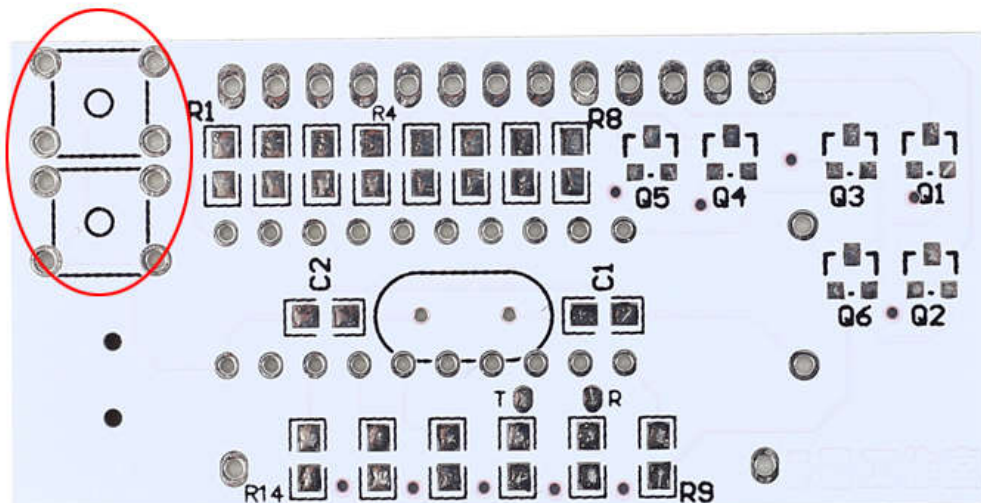


Step 8: Install 1pcs DIP-20 STC11F02E-35I. There is a dot on one corner of the IC and there is a mark on PCB where the IC can place on. These two marks are corresponding to each other and are used to specify the installation direction of the IC.

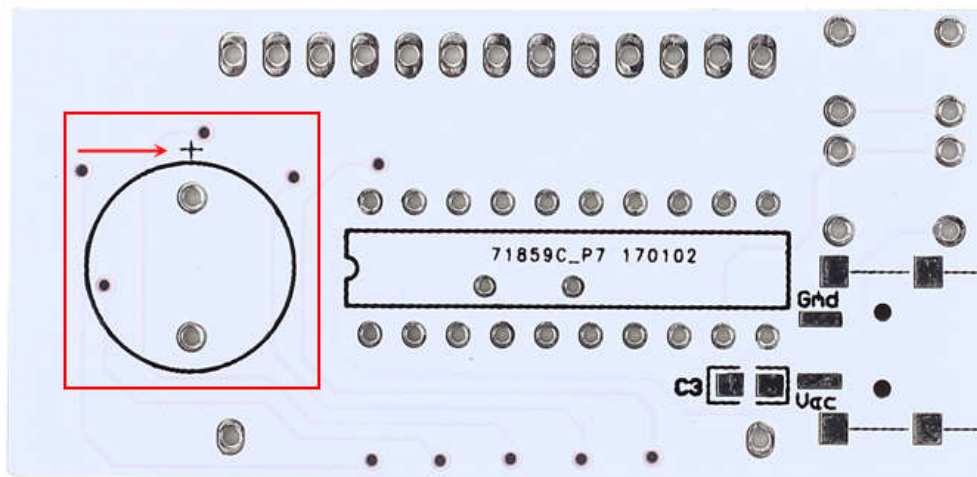
Note: It is on the other side of PCB.



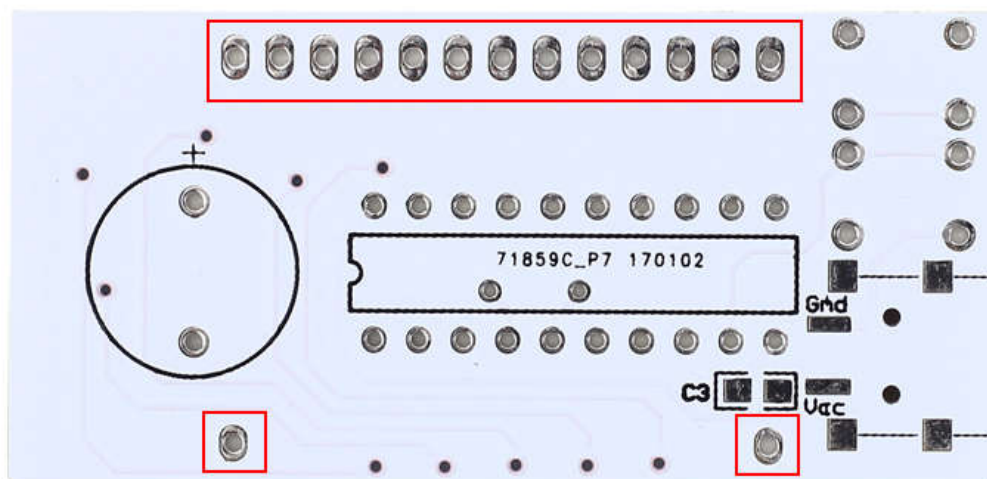
Step 9: Install 2pcs 6*6mm Black Button.



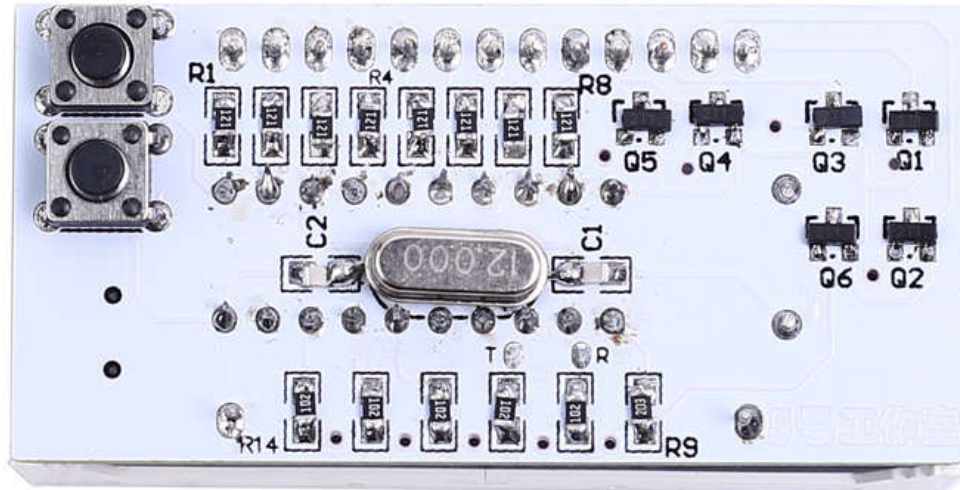
Step 10: Install 1pcs Buzzer on the same side to IC.

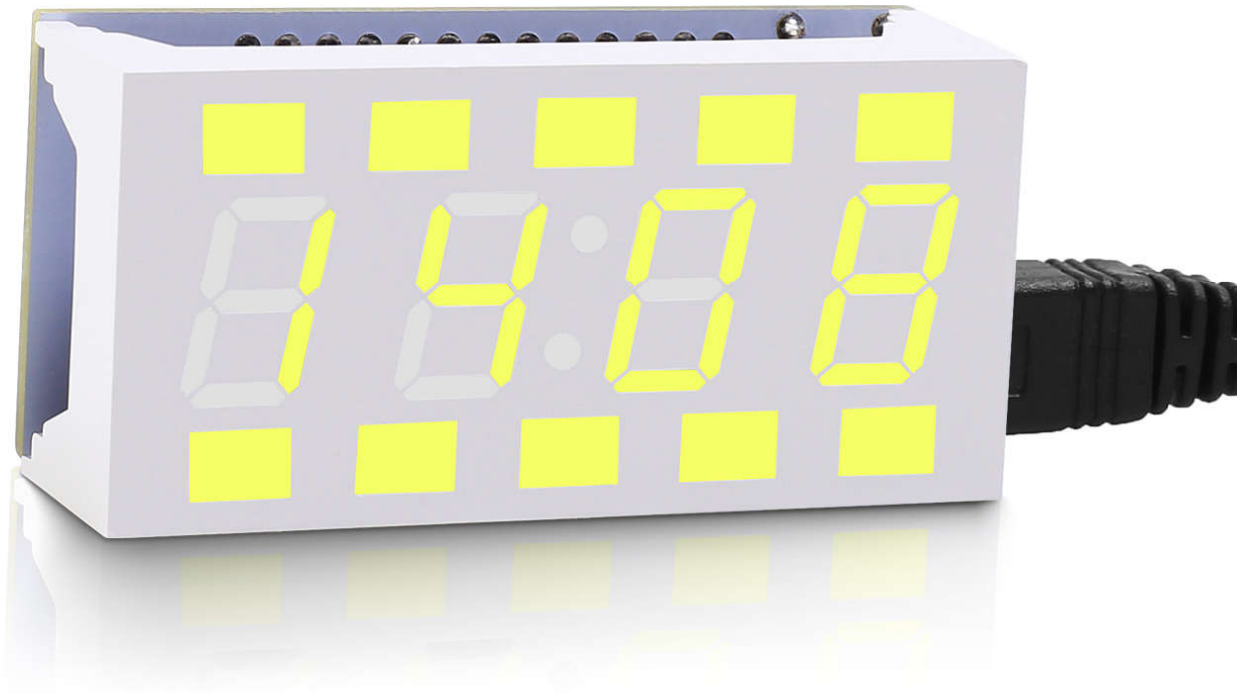


Step 11: Install 1pcs 4Bit Digital Tube Display on the same side to IC.



Step 12: Connect to power supply and enjoy the clock.





Hour and Half Hour Alarm Function

ON



OFF



VIII. Tips about DIY Electronics

This product comes to you is DIY kits that needs to be installed, not the finished product! Read the product instruction carefully before installing. And DIY Electronics Operation is a practice activity that **requires certain foundation** of basic electronic theoretical knowledge and welding and hands-on ability. We can't guarantee that all our friends will DIY successfully due to the varying learning phases.

We pledge seriously to you: We could fully satisfy you with our quality products, high-efficiency logistics and perfect after-sale service! We will **do our utmost to assist you** to complete the installation. Your satisfaction is our commitment.

If the finished product does not achieve the effect we described or you have any questions or problems with our product or the transaction unfortunately, **don't rush to give us a negative feedback** out of anger and impulse, please do not hesitate to **contact us** directly for further help.

IX. Appendix

1. WHDTS specializes in Electronics Products, such as circuit components, function modules, wireless module, robotics accessories, DIY kits etc.. WHDTS devotes lifetime to providing excellent products with competitive price, fast delivery and 100% after-sales service for all makers, DIYer, R & D personnel, electronic enthusiasts, students and teachers. We are aimed at making your electronics projects go with a swing.

2. WHDTS has long been engaged in Electronics Related Products wholesale and retail business.

Welcome letter calls to discuss the wholesale and retail business.

We have been keeping trying to improve the manual. If any words or steps of the instruction confuses you, please feel free to let us know because English is not our first language. We will appreciate for the generous help of pointing out our expression problem. Thank you in advance.